UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,198	02/16/2004	Chiao-Ju Lin	10767-US-PA	2197

31561 7590 05/03/2007

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER	
PIZIALI, JEFFREY J	
ART UNIT	**PAPER NUMBER**
2629	

NOTIFICATION DATE	DELIVERY MODE
05/03/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Office Action Summary	Application No.	Applicant(s)	
	10/708,198	LIN, CHIAO-JU	
	Examiner	Art Unit	
	Jeff Piziali	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 6-14* is/are pending in the application.

4a) Of the above claim(s) *8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6,7 and 9-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. Applicant's election with traverse of Species I (i.e., claims 1, 6, 7, and 9-14) in the reply filed on 8 February 2007 is acknowledged. The traversal is on the ground(s) that " 'appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP § 808.02' is not retold in the Office Action;" and "the two species are not independent and distinct because they do overlap in scope, mode of operation, function mad effect for serving as switches" (see Pages 4-5 of the 'Response to Restriction Requirement' filed 8 February 2007).

Respectfully, this is not found persuasive because: Firstly, the demonstration or explanation of "separate classification, or separate status in the art, or a different field of search" required by MPEP § 808.02 is only applicable, "Where the inventions as claimed are shown to be independent or distinct under the criteria of MPEP § 806.05(c) - § 806.06." In contrast, the rules and procedures governing "claims directed to different embodiments or species" are located in MPEP § 806.04 and 808.01(a). There is no requirement (under MPEP § 803 or 35 U.S.C. 121 or elsewhere) to explain a "separate classification, or separate status in the art, or a different field of search" when restricting patentably distinct species.

Secondly, the two instant species are independent and distinct because the species do not overlap in scope, i.e., are mutually exclusive; the species are not obvious variants; and the species each have a materially different design, mode of operation, function, and effect. The applicant argues that because a P-type thin film transistor and an N-type thin film transistor both serve as "switches," this somehow means they are not mutually exclusive. The examiner respectfully disagrees, and notes that a P-type thin film transistor cannot possibly simultaneously also be an N-type thin film transistor -- therefore they constitute mutually exclusive switch types / species. Unless the applicant is willing to acknowledge on the official record that replacing the P-type thin film transistors of Species I with the N-type thin film transistors of Species II would have been obvious to one having ordinary skill in the art at the time of invention, then the requirement remains proper.

The requirement is still deemed proper and is therefore made FINAL.

3. Claim 8 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 8 February 2007.

Specification

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

5. The drawings are objected to because Figure 7 shows switches 620 and 630 connected source "V_{s3}". Compared to Figures 4-5 and paragraph 37 of the specification, it appears as though the aforementioned source should be relabeled as "V_{s2}". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

6. Claim 6 is objected to because of the following informalities: lines 3-4 should be changed to recite the subject matter of, "the cathode [not the anode] being connected to a

negative power source" (see Figures 6-7; and Paragraph 33 of the specification). Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 10 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The term "close to a threshold voltage" in claims 10 and 13 is a relative term which renders each claim indefinite. The term "close to a threshold voltage" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art exactly what range the pre-charge voltage level can have before it would cease to be considered "close to a threshold voltage."

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1 and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Yumoto (WO/2001/006484 A). [Please note: For purposes of this office action, Yumoto (US 6,859,193 B1) is relied upon as the English language translation of Yumoto (WO/2001/006484 A).]

Regarding claim 1, Yumoto discloses a driving circuit of a current-driven active matrix organic light emitting diode (see Column 24, Line 60 - Column 25, Line 5), comprising: an AMOLED pixel [Fig. 24; OLED] connected to a current source [Fig. 24; data], the current source being used to charge/discharge a capacitor [Fig. 24; C, C_d] connected to a gate of a driving thin film transistor [Fig. 24; TFT2], and a gray scale of the AMOLED pixel is determined by a magnitude of a current provided by the current source; and a pre-charge switch [Fig. 24; PRC1] connected to the gate of the driving thin film transistor and a driving power source [Fig. 24; Vdd], for controlling the driving power source to pre-charge the capacitor before the current source charges/discharges the capacitor (see Column 23, Line 34 - Column 24, Line 7).

Regarding claim 10, Yumoto discloses a pre-charged voltage level across the capacitor is close to a threshold voltage [Fig. 25; V_{th1}] of the thin film transistor (see Column 23, Line 40 - Column 24, Line 7).

Regarding claim 11, Yumoto discloses the driving power source comprises two different voltage levels [Fig. 24; positive potential and Fig. 26; negative potential] (see Column 23, Line 34 - Column 24, Line 37).

Regarding claim 12, Yumoto discloses method for driving a current-driven active matrix organic light emitting diode pixel (see Column 24, Line 60 - Column 25, Line 5), wherein an AMOLED pixel [Fig. 24; OLED] is connected to a current source [Fig. 24; data] and a driving power source [Fig. 24; Vdd] for charging/discharging a capacitor [Fig. 24; C, C_d] connected to a gate of a driving thin film transistor [Fig. 24; TFT2] of the AMOLED pixel, the method comprising the steps of: pre-charging the capacitor by using the driving power source; adjusting a gray-scale charging voltage of the capacitor by using the current source; and stopping charging/discharging the capacitor through the current source to control the AMOLED pixel to enter an illumination stage (see Column 23, Line 34 - Column 24, Line 7).

Regarding claim 13, Yumoto discloses a pre-charged voltage level across the capacitor is close to a threshold voltage [Fig. 25; V_{th1}] of the thin film transistor (see Column 23, Line 40 - Column 24, Line 7).

Regarding claim 14, Yumoto discloses the driving power source comprises two different voltage levels [Fig. 24; positive potential and Fig. 26; negative potential] (see Column 23, Line 34 - Column 24, Line 37).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 6, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yumoto (WO/2001/006484 A). [Please note: For purposes of this office action, Yumoto (US 6,859,193 B1) is relied upon as the English language translation of Yumoto (WO/2001/006484 A).]

Regarding claim 6, Yumoto discloses the driving thin film transistor is an N-type thin film transistor [Fig. 24; TFT2], and the AMOLED pixel further comprises: an organic light emitting diode [Fig. 24; OLED] having an anode and a cathode, the anode being connected to a negative power source [Fig. 24; Vdd]; a first switch [Fig. 24; TFT2] with one end connected to the anode of the OLED; a second switch [Fig. 24; TFT1] with one end connected to the current source [Fig. 24; data] and another end connected to the drain of the driving thin film transistor (wherein both TFT1 and TFT2 and connected to ground); and a third switch [Fig. 24; TFT4] with one end connected to the drain of the driving thin film transistor and another end connected to the gate of the driving thin film transistor and one end of the capacitor, and the other end of the capacitor being connected to a positive power source [Fig. 24; ground] (see Column 23, Line 34 - Column 24, Line 7).

In the embodiment illustrated in Figure 24, Yumoto does not expressly disclose using a P-type thin film transistor as the driving thin film transistor; nor a first switch with one end connected to the anode of the OLED and another end connected to a drain of the driving thin film transistor.

However, in other embodiments, Yumoto discloses the driving thin film transistor [Fig. 26; TFT2] being a P-type thin film transistor (see Column 24, Lines 8-34); as well as using a

double gate configuration [Fig. 8; TFT2a, TFT2b] for the driving thin film transistor (see Column 14, Lines 5-36). Therefore, it would have been obvious to one having ordinary skill in the art to replace Yumoto's single N-type driving TFT with two P-type TFTs (i.e., the driving thin film transistor and the first switch), so as to improve the constant current property of the switch, while also suppressing leakage current.

Regarding claim 7, Yumoto discloses the third switch is a P-type thin film transistor [Fig. 24; TFT4]. However, in other embodiments, Yumoto discloses both the driving thin film transistor [Fig. 26; TFT2] and the second switch [Fig. 26; TFT1] being P-type thin film transistors (see Column 24, Lines 8-34); as well as using a double gate configuration [Fig. 8; TFT2a, TFT2b] for the driving thin film transistor (see Column 14, Lines 5-36).

Regarding claim 9, Yumoto discloses the negative power source [Fig. 24; Vdd] is used as the driving power source [Fig. 24; Vdd] (see Column 23, Line 34 - Column 24, Line 7).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ono et al (US 7,199,768 B2), Kimura (US 7,184,034 B2), Nanno et al (US 7,173,612 B2), Yamazaki et al (US 7,170,094 B2), Okabe et al (US 7,154,454 B2), Kim et al (US 7,106,281 B2), Shin et al (US 7,057,589 B2), Kimura (US 7,046,240 B2), Rutherford (US 6,861,810 B2), Sekiya et al (US 6,583,775 B1),Sugawara et al (US 6,400,448 B1), Nagumo (US 6,400,349 B1), Juang (US 6,366,116 B1), Juang (US 6,323,631 B1), Kane (US 6,229,508 B1),

Dawson et al (US 6,229,506 B1), and Wei et al (US 5,723,950 A) are cited to further evidence the state of the art pertaining to driving a current-driven active matrix organic light emitting diode.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeff Piziali
25 April 2007